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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,735	07/25/2003	Leonard Forbes	M4065.0181/P181-B	9702
24998 7590 02/15/2007 DICKSTEIN SHAPIRO LLP 1825 EYE STREET NW Washington, DC 20006-5403			EXAMINER TRA, ANH QUAN	
			ART UNIT	PAPER NUMBER
			2816	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/15/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/626,735

Applicant(s)

FORBES, LEONARD

Examiner

Quan Tra

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/24/06.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 67-82, 86-89 and 92-144 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 67-82, 86-89 and 92-144 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

This office action is in response to the amendment filed 12/13/06. The rejections in previous office action are maintained, and new ground of rejection are introduced as necessitated by amendment.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 120 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 120-123 are misdescriptive and renders the claim indefinite. As understood, only figure 11A is readable on claims 120-123. However, figure 11A shows the drain, not the source, of the third transistor M8 is coupled to the source of the second transistor M4, and the source, not the drain, of the third transistor is coupled to the input as to claim 120. Claims 119 recites that the amplifier comprises cross coupled amplifiers. However, figure 11A does not show cross coupled amplifiers.

As to claims 122 and 124, there is no antecedent basis for the limitations "the first amplifier" and "the second amplifier".

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re*

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Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 112-116 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-67 of U.S. Patent No. 6316969 in view of Muto (JP 11-026593), and Mirov (USP 6008682).

The patent's claims recite all limitations of the claims except for driver driving the amplifier via transmission lines, wherein the impedances of the transmission lines are adjustable and less than 50 ohms; and terminations circuit coupled to the transmission lines. However, Muto teaches driver circuit having adjustable transmission lines, and Mivor teaches termination circuits coupled to transmission lines, wherein the impedances of transmission lines are less than 50 Ohms. Therefore, it would have been obvious to use driver having adjustable transmission lines to driver the patent's amplifier circuit, and use termination circuits coupled to the transmission lines for the purpose of saving power consumption and reducing signal skew.

5. Claims 119-124 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-44 of U.S. Patent No. 6307405 in view of Muto (JP 11-026593), and Mirov (USP 6008682).

The patent's claims recite all limitations of the claims except for driver driving the amplifier via transmission lines, wherein the impedances of the transmission lines are adjustable and less than 50 ohms; and terminations circuit coupled to the transmission lines. However, Muto teaches driver circuit having adjustable transmission lines, and Mivor teaches termination

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circuits coupled to transmission lines, wherein the impedances of transmission lines are less than 50 Ohms. Therefore, it would have been obvious to use driver having adjustable

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 67-82, 86-89, 92-111, 117-119, 121, 124 and 125-144 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art in USP 6377084 in view of Muto (JP 11-026593), and Mirov (USP 6008682).

As to claim 87, the prior art figure 2 in USP 6377084 shows a pair of cross coupled amplifiers (amplifier comprising T1 and T3 and amplifier comprising T2 and T4; a signal transmission system comprising: a first transmission member (I1) having a first length and coupled to a first (T1, T3) of the pair of cross-coupled amplifiers; the first transmission member including a transmission medium (inherent); a second transmission member (I2) having a second length and coupled to a second (T2, T4) of the pair of cross-coupled amplifiers, the second transmission member including the transmission medium (inherent); a signal receiver (the differential amplifier) having first and second signal inputs coupled to the first and second transmission members respectively; first and second signal generators (the transistors that generate I signals) coupled to the first and second transmission members respectively. Thus, figure 2 shows all limitations of the claim except for "an impedance adjusting component coupled to the second transmission member". However, Muto's figure 2 shows a signal transmission system having an impedance adjusting component ((7, 11, 15) or 8, 12, 16)) coupled to the second transmission member (3 or 4) in order to reduce signal skew generated

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by first and second drivers INV1 and INV3. Therefore, it would have been obvious to one having ordinary skill in the art to add impedance adjusting component to at least one of the transmission member in the prior art figure 2 of USP 6377084 for the purpose of reducing signal skew. The prior art further fails to show termination circuit connected to at least one of the transmission members. However, Mirov's figure 5 shows termination circuits R5 and R6 respectively connected to the transmission members T1 and T2 in order to eliminate reflection. Therefore, it would have been obvious to one having ordinary skill in the art to add termination circuit for each of the prior art's transmission members for the purpose of eliminating signal reflection, thereby saving power consumption. The modified prior figure 2 in USP 6377084 further fails to teach that the impedance of the transmission member is less than 100 ohms. However, it is notoriously well known in the art that the impedance of the transmission member is proportional to the power consumption. Further, Mirov teaches that the impedances of transmission members T1 and T2 are less than 100 Ohms. Therefore, it would have been obvious to one having ordinary skill in the art to use a less than 100 Ohms transmission line for each of the prior art's transmission member for the purpose of saving power consumption.

Claim 67 recites similar limitations of claim 87. Therefore, it is rejected for the same reasons.

As to claim 68, the modified Applicant's prior art figure 2 shows all limitations of the claim except the impedance adjusting component comprises: an electrical inductor. However, it is notoriously well known in the art that the impedance of parallel connected capacitor is equal to the impedance of serial connected inductor (impedance of capacitor is $1/j\omega C$, and impedance of inductor is $j\omega L$). Therefore, it would have been obvious to one having ordinary skill in the art to use series connected inductors for the impedance adjusting component due to doctrine equivalent function.

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As to claim 69, the modified Applicant's prior art figure 2 fails to show the electrical inductor comprises a spiral inductor. However, it is well known in the art that a spiral inductor is used in a high speed environment. Therefore, it would have been obvious to one having ordinary skill in the art to use spiral inductors for the impedance adjusting component for the purpose of operating in a high speed environment.

As to claim 70, the modified Applicant's prior art figure 2 shows an impedance adjusting component comprising a material (the newly added inductors) having a magnetic permeability, the material adapted to be incorporated into the second transmission member.

As to claim 71, Nishimura et al.'s figure 5 shows the impedance adjusting component comprising an electrical capacitor (C12).

As to claim 72, the modified Applicant's prior art figure 2 shows the relationship established between respective transmission times that comprises equalization of the respective transmission times.

As to claim 73, the modified Applicant's prior art figure 2 shows the first length is different from the second length and the respective transmission times through the respective first and second transmission members are equal.

As to claim 74, it is inherent that the transmission medium comprises an electrical transmission medium.

As to claim 75, the modified Applicant's prior art figure 2 shows the electrical transmission medium comprising a first conductor, a second conductor, and a dielectric material (inherent) disposed between the first conductor and the second conductor.

As to claim 76, the modified Applicant's prior art figure 2 shows the electrical transmission medium comprising a first conductor; a second conductor; and an evacuated region (inherent) disposed between the first conductor and the second conductor.

As to claim 77, the modified Applicant's prior art figure 2 shows the electrical transmission medium comprises first and second conductors disposed in a coaxial relationship to one another and a dielectric medium disposed between the first and second conductors.

As to claim 78, the modified Applicant prior art figure 2 fails to show that the medium is optical medium. However, it is seen as an intended use for using the modified prior art figure 2 in optical medium because the modified prior art figure 2 is capable of operating in optical medium.

As to claim 79, the modified Applicant's prior art figure 2 fails to show the capacitor C12 comprises a plurality of capacitors. However, it is notoriously well known in the art that a capacitor can be made by a plurality of small capacitors connected in parallel ($C_{total} = C_1 + C_2 + \dots + C_n$). Therefore, it would have been obvious to one having ordinary skill in the art to use a plurality of parallel capacitors for Nishimura et al.'s capacitor 12 in order to meet a desired capacitance.

As to claim 80, Applicant's prior art figure 2 shows the first and second signals comprise first and second digital signals.

As to claim 81, Applicant's prior art figure 2 shows first and second signal receivers (T1, T3 and T5; T2, T4 and T6) coupled to the first and second transmission members at respective first and second signal inputs.

As to claim 82, the modified Applicant's prior art figure 2 shows the first input has an input impedance substantially equal to a characteristic impedance of the first transmission member (because of the newly added termination circuits) and the second input has an input impedance substantially equal to a characteristic impedance of the second transmission member.

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As to claim 86, the prior art figure 2 shows that the first receiver (T1, T3, T5) comprises a first input (note 5) adapted to be coupled to the first transmission member and a second input (gates of T1 and T3) adapted to be coupled to a reference signal.

Claims 88 and 89 recite similar limitations of claim 87. Therefore, they are rejected for the same reasons.

As to claim 98, the modified prior art figure 2 shows the termination circuit terminates at least a first characteristic impedance of the first transmission member and the second characteristic impedance of the second transmission member.

Claims 92-111 and 125-144 recite similar limitations of claims above. Therefore, they are rejected for the same reasons. As further called in for claims 105, 142 and 144, Mirov further teaches that the impedance of transmission line is less than 50 Ohms. Therefore, it would have been obvious to one having ordinary skill in the art to select the impedance of the transmission line to be less than 50 Ohms for the purpose of saving power consumption.

As to claims 117 and 118, the prior arts fail to teach the length of the transmission line is at least 1000 micrometers or 500 micrometers. However, it has been held that optimization of range limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See MPEP 2144.05(II). Therefore, it would have been obvious to one having ordinary skill in the art to select the length of the transmission line to be at least 1000 micrometers or 500 micrometers dependent upon particular environment of use to ensure optimum performance.

As to claim 119, Applicant's prior art shows that the amplifier circuits comprise a first transistor (T1) of a first conductivity type, a signal input node coupled to a source region of the first transistor; a second transistor (T3) of a second conductivity type, wherein the first and second transistors are coupled at a drain region; and a signal output node (Vout) coupled to the

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drain region of the first and second transistors in the current sense amplifier, the signal output node further coupled to a gate of a third transistor (T4).

As to claim 121 Applicant's prior art shows that the first transistor is NMOS and the second transistor is PMOS.

As to claim 124, Applicant's prior art shows that the signal input node of the first amplifier receives an input current, and wherein the signal input node of the second amplifier receives a reference current.

3. Claims 119 and 122-124 are rejected under 35 U.S.C. 103(a) as being unpatentable over Samarandoiu et al. (USP 5390147) in view of Muto (JP 11-026593), and Mirov (USP 6008682).

Insofar as understood to claim 119, Samarandoiu et al.'s figure 2 shows at least one transmission line 430; driver (not shown) coupled to the first end of the transmission line; and amplifier circuits all elements in figures 2) coupled to the end of the transmission line, the amplifier circuit comprising first transistor 431, second transistor 441, and third transistor 601 connected as claimed. Figure 2 fails to show the impedance of the transmission line is adjustable. However, Muto's teaches a driver circuit having adjustable transmission line. Therefore, it would have been obvious to one having ordinary skill in the art to add variable capacitor to the transmission line for the purpose of reducing signal skew. Samarandoiu et al.'s figure 2 further fails to teach termination circuit coupled to the transmission line. However, Mirov teaches termination circuit coupled to transmission line in order to reduce signal reflection. Therefore, it would have been obvious to one having ordinary skill in the art to add termination circuit to the transmission line in order to reduce signal reflection.

As to claim 121, Samarandoiu et al.'s figure 2 shows that the first transistor is a NMOS, and second transistor is a PMOS.

As to claim 122, Samarandoiu et al.'s figure 2 shows that the drain region for the first and the second transistor in the first amplifier are coupled to gates of the second transistor in the first and the second amplifier.

As to claim 123, Samarandoiu et al.'s figure 2 shows that the third transistor is an NMOS.

As to claim 124, Samarandoiu et al.'s figure 2 shows that the signal input node of the first amplifier receives an input current, and wherein the signal input node of the second amplifier receives a reference current.

Allowable Subject Matter

Claims 112-116 and 120 would be allowable if overcome the doubled patenting rejection, and if claim 120 be rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

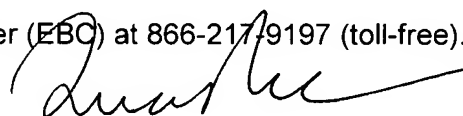
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan Tra whose telephone number is 571-272-1755. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



QUAN TRA
PRIMARY EXAMINER
ART UNIT 2816

February 2, 2007